

# Core Concepts

Division of Juvenile Corrections

Moving Forward Together

Issue 4, June 2014

## Adverse Childhood Experiences (ACEs) - Part One

The May 2014 Core Concepts issue provided an overview of Positive Youth Development and suggested ways in which DJC employees can support the youth in our care through positive experiences, environments, and relationships. We know that, for many of the youth we work with, childhood has not provided those positive influences. Instead, many have had adverse childhood experiences—or ACEs—which have lasting impacts their physical, mental, and behavioral health.

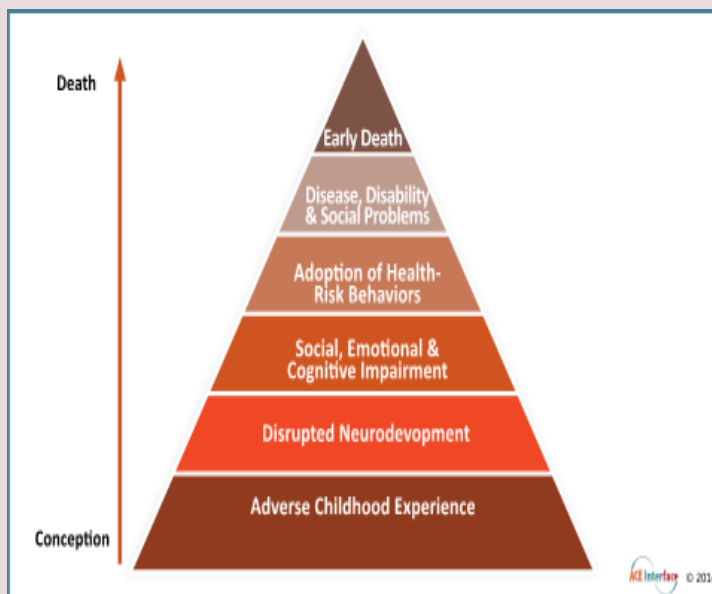
### The ACE Study

In 1995, the Centers for Disease Control and Kaiser Permanente launched a research study with over 17,000 participants to explore the connections between childhood maltreatment and long-term health.

The ACE Study hypothesis is that ACEs lead to impaired neurodevelopment, which in turn leads to social, emotional and cognitive adaptations that can then lead to the risk factors for major causes of disease, disability, social problems, and early death.

The researchers gathered baseline information about the participants' current physical health and behaviors, as well as childhood experiences and family dysfunction. The study continues to track the health status of the study participants over time and has found a strong relationship between adverse childhood experiences and risk factors for several leading causes of death.

The ACE Pyramid at right is a model illustrating how adverse childhood experiences influence human development in predictable ways.



### ACEs and Brain Development



Humans are only made to be under stress long enough to prepare for a fight or to hide, so experiences that cause stress chemicals to be continuously produced—such as child abuse or neglect—have a big impact on development. Traumatic experiences during development—like abuse, neglect, and chaotic relationships—generate predictable patterns of brain architecture, behavior, and traits. Under these circumstances, our bodies tend to prepare for life in a dangerous world.

Over time, elaborate systems of specialized brain regions develop that help us to navigate increasingly complex environments. New abilities build on the growth and development from earlier months and years. There are sensitive periods for each brain region when the size and functional abilities of the region are most affected by experience and are most vulnerable to toxic stress. In

particular, exposure to neglect in infancy (especially for boys) and exposure to sexual abuse around ages 9 and 10 (especially for girls) has powerful impacts on the developing brain.

Stress hormones exert influence on cells, chemicals and wiring which can result in a person being edgy, hot tempered, impulsive and hypervigilant, or being withdrawn, dissociated, or numb. For example, people who have had traumatic stress from conception to the toddler years will likely have a higher baseline of the stress hormones like cortisol in their bodies. As a result, these individuals may have a very short fuse, be self-focused, and may have a difficult time shifting gears from emotions to problem-solving. The effect of ACEs on the developing brain leads to a higher likelihood of feeling depressed, anxious, or having difficulty concentrating.



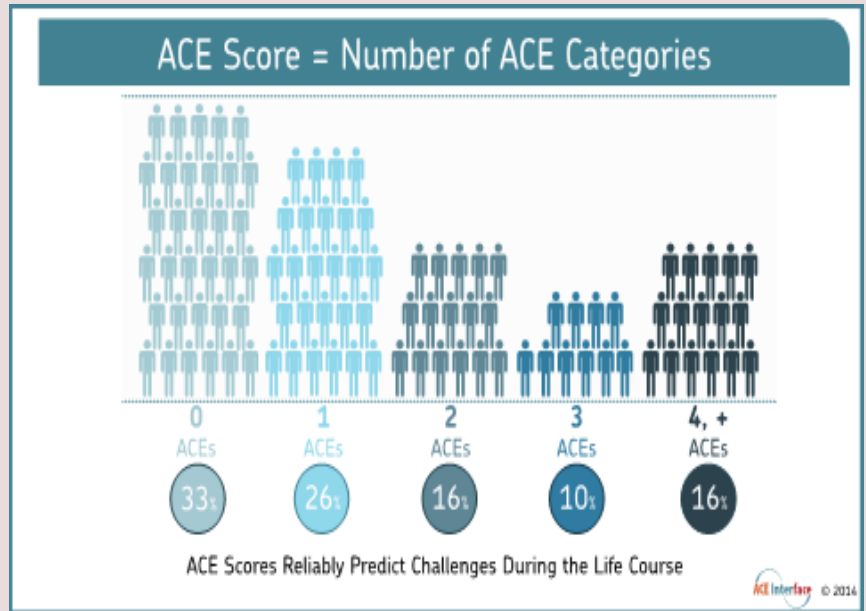
## The ACE Score and Key Findings

ACEs usually do not occur in isolation. Because adverse childhood experiences are so highly interrelated, it did not make sense to look at how single categories of ACEs influenced health and social problems. Instead Drs. Anda and Felitti developed an ACE Score. The ACE Score is calculated by totaling the responses to a brief 10-question survey about adverse experiences in youth. Think of the ACE Score as a measure of the childhood “biologic stress dose.” As the ACE Score goes up, on average, the exposure to the developmental effects of toxic stress increases.

Adverse Childhood Experiences are common, and they tend to cluster. In the illustration below, you see that only a third of people in the study had an ACE Score of zero. Sixteen percent had scores of 4 or more ACEs.

People who report higher ACE scores are more likely to have health and social problems. As the number of ACEs increases, so does a person’s risk for these problems, including but not limited to:

- Alcoholism
- Chronic Obstructive Pulmonary Disease
- Depression
- Illicit drug use
- Liver disease
- Intimate partner violence
- Sexually transmitted diseases
- Smoking
- Suicide attempts
- Early initiation of sexual activity
- Unintended pregnancies
- Adolescent pregnancy
- Fetal death



## References and Additional Resources

ACE Interface, LLC website, <http://www.aceinterface.com>

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Teicher, M.H. (2002). *Scars that won't heal: The neurobiology of child abuse*, Scientific America, 286(3).

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## For more information...

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Next Month: ACEs Part 2 - Using the ACE Score in Juvenile Justice Practice